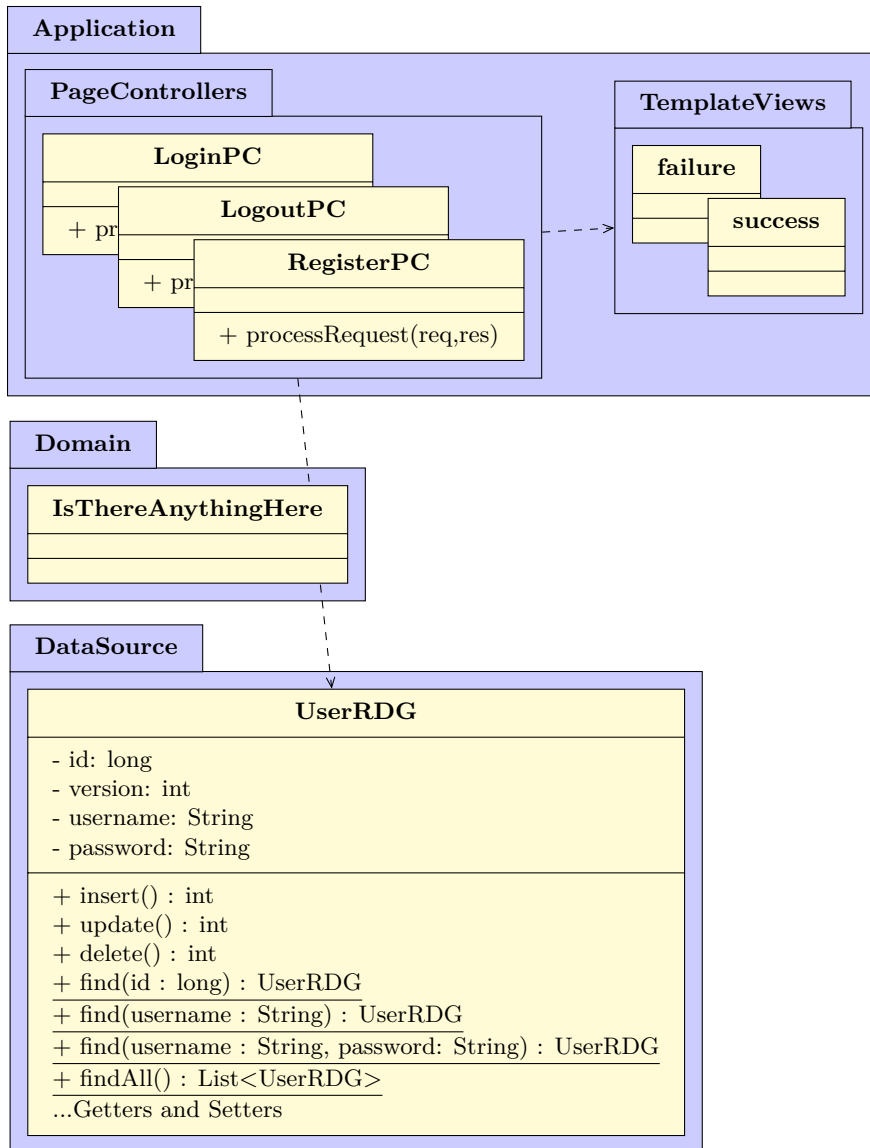


# 1 Class Diagram



## 2 Sequence Diagram

This works in <https://www.websequencediagrams.com/>

```
title Register User
```

```
participant ":RegisterPC" as PC
participant "req:HttpServletRequest" as req
participant "session:HttpSession" as s
participant "UserRDG" as RDG
participant "u:UserRDG" as u
participant "success.jsp" as jsp
```

```
PC->req:getParameter("user"):"fred"
PC->req:getParameter("pass"):"bob"
PC->RDG:find("fred"):null
PC->*u: <<create>>
PC->u:insert()
PC->u:getId():2
PC->req:getSession();
PC->s:setAttribute("userid", 2)
PC->req:setAttribute("message", "...")
PC->jsp:forward(req,res)
```

## 3 Code

### 3.1 Register

```
public class RegisterPC {
    public void processRequest(HttpServletRequest req, HttpServletResponse res)
        throws ServletException, IOException {
        String user = req.getParameter("user");
        String pass = req.getParameter("pass");
        if(user==null || user.isEmpty() || pass==null || pass.isEmpty() ) {
            req.setAttribute("message", "Please enter both a username and a password.");
            req.forward("failure.jsp");
        } else {
            UserRDG u = UserRDG.find(user);
            if(u != null) {
                req.setAttribute("message", "That user has already registered.");
                req.forward("failure.jsp");
            } else {
                u = new UserRDG(getNewUserID(), user, pass);
                u.insert();
                long id = u.getId();
                req.getSession(true).setAttribute("userid", id);
                req.setAttribute("message", "User '" + user + "' has been successfully registered.");
                req.forward("success.jsp");
            }
        }
    }
}
```

## 3.2 Login

```
public class LoginPC {
    public void processRequest(HttpServletRequest req, HttpServletResponse res)
        throws ServletException, IOException {
        String user = req.getParameter("user");
        String pass = req.getParameter("pass");

        UserRDG u = UserRDG.find(user, pass);
        if(u == null) {
            req.setAttribute("message", "I do not recognize that username and password combination.");
            req.forward("failure.jsp");
        } else {
            long id = u.getId();
            req.getSession(true).setAttribute("userid", id);
            req.setAttribute("message", "User '" + u.getUsername() + "' has been successfully logged in.");
            req.forward("success.jsp");
        }
    }
}
```

### 3.3 Logout

```
public class LogoutPC {
    public void processRequest(HttpServletRequest req, HttpServletResponse res)
        throws ServletException, IOException {
        long id = (Long)req.getSession(true).getAttribute("userid", id);
        UserRDG u = UserRDG.find(id);

        req.getSession(true).invalidate();
        req.setAttribute("message", "User '" + u.getUsername() + "' has been successfully logged out.");
        req.forward("success.jsp");
    }
}
```

But what if no user was logged in? What do we check for? What can go wrong?